

ANIMAL-FOSSILS AND PALAEOOLITHIC INDUSTRIES FROM THE PRAVARA BASIN AT NEVASA, DISTRICT AHMADNAGAR

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1. INTRODUCTION

IT was in 1930 that Cammiade and Burkitt, for the first time, brought to our notice an Upper Palaeolithic element in the Stone Age industries of India, while describing the finds from south-east India.¹ This discovery was followed by that of Todd in the west coast, near Bombay.² Passing reference has also been made to a flake- and

¹ L. A. Cammiade and M. C. Burkitt, 'Fresh light on the Stone Ages in south-east Asia', *Antiquity*, 1930, pp. 327-39.

² K. R. U. Todd, 'Palaeolithic industries of Bombay', *Jour. Roy. Anthropological Inst. Great Britain and Ireland*, LXIX (1939), pp. 257-72.

blade-assemblage from central India,¹ but its character is not known. Recently Krishnaswami and Soundara Rajan have reported similar discoveries in the Singrauli basin near Mirzapur in northern slopes of the Vindhya.²

The object of this paper is to announce a similar succession of lithic tool industries, with an indication of probable climatic changes, in northern Deccan.

Nevasa (19° 30' N. Lat. and 74° 50' E. Long.) is a small town situated on either bank of the Pravara river, a tributary of the Godavari, in Ahmadnagar District, Bombay State (fig. 1). Last season, the Deccan College Research Institute, under the auspices of the University of Poona, conducted excavations in the chalcolithic mound overlooking the river.

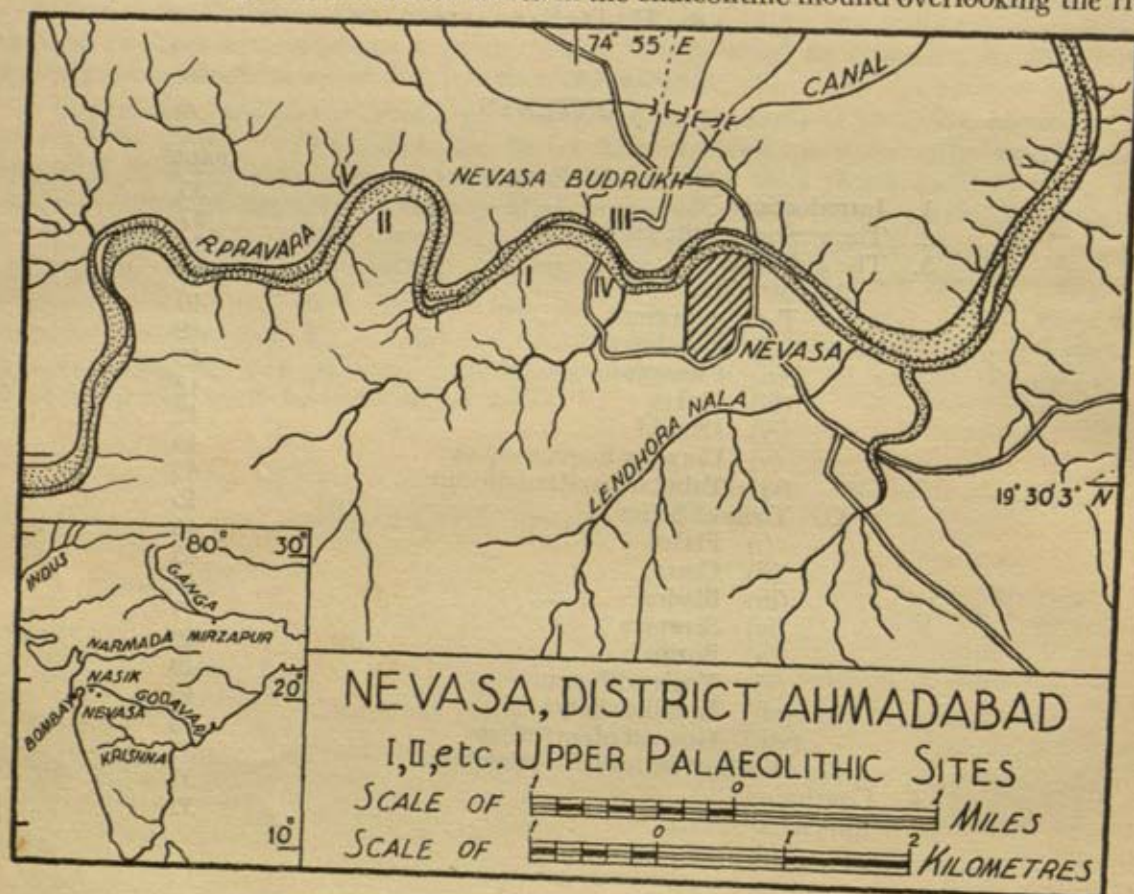


FIG. 1

¹ H. De Terra and T. T. Paterson, *Studies on the Ice Age and Associated Human Cultures* (Washington, 1939), p. 320, had also reported the discovery of a flake- and blade-industry from the basal gravel of the new alluvium and *regur* clay of the Narmada in central India. They, however, thought that the industry belonged to relatively recent times, and hence did not describe or illustrate it. We had an opportunity to work in the adjacent area, at Maheshwar, and found that 10-ft. thick deposits of a chalcolithic culture rested on the surface of the *regur* or black soil. In fact, the stratigraphical sequence of cultures at Maheshwar and Nevasa is identical. It would, therefore, appear that the flake- and blade-industry of the Narmada is not so late. We found a large number of scrapers of jasper in the *regur* and a few flakes and cores in the uppermost gravel beds but no blades.

² V. D. Krishnaswami and K. V. Soundara Rajan, 'The lithic tool-industries of the Singrauli basin, District Mirzapur', *Ancient India*, no. 7 (1951), pp. 40-65.

While doing so, it carried out a systematic survey of the river in its vicinity, in search of palaeolithic tools and the associated fossil and human remains.

No palaeolithic tools of any kind were reported from this river-basin before, though the writer had found in the Godavari and its other tributary in the adjoining District of Nasik, some ten years ago, microlith-like flakes and blades at Nandur-Madhmeshwar on the Godavari, about 64 miles to the north-west of the present area.¹ Zeuner had also briefly inspected this site in 1949,² though not many tools were found then. However, during our work at Nasik and its surroundings in 1951, genuine palaeoliths were discovered.³ This gave us hope of similar discoveries in the Pravara basin.

During our preliminary surveys in this basin, nothing truly palaeolithic was found, but we noticed that the drier part of the present river-bed was full of small flakes, blades and scrapers of agate, jasper and chalcedony. Since these did not occur in stratified deposits, it was difficult to have an idea of their age. The credit of discovering such a deposit, which led to a subsequent scientific investigation, goes to Shrimati Sarla H. Sankalia. During this work, accomplished with the help of Dr. R. V. Joshi, my former pupil and now Reader in Geology in the Karnatak University, and Shaikh Zainuddin Ansari, to whom are also due all the drawings and photographs reproduced here, the gravel-layers were minutely searched and carefully mapped for a distance of nearly 2 miles west of Nevasa and a small section of it partly excavated. It was during this search that five animal-fossils were found, four by Shaikh and one by Sarla Sankalia.

2. THE GEOLOGY OF THE LAND

The geology of the area is quite simple. It forms a part of the basaltic Deccan 'trap' formation, which constitutes a considerable part of central and peninsular India. The age of this formation is believed to be Upper Cretaceous or Early Eocene. The first rivers—the Godavari and its tributaries—rising in several spurs of the Western Ghats and going eastwards, flowed over this basal basaltic bed. The climate then was probably of a pluvial type, so that the river carried large pebbles of the parent-rock as well as of the veins of chert, jasper etc., formed in it. Such a climate would also favour the existence of animals like *Elephas namadicus* and hippopotamus, remains of which were found in the cemented gravels of the Godavari. Gradually, however, drier conditions seem to have prevailed, so that the river went on raising its bed, first with coarse and then with finer gravel and sand. Possibly this process was not continuous or took place over the whole length of the river, for, at places, the gravels are intercalated with clayey beds. And it is these which help us in distinguishing the various gravel-layers (figs. 2 and 3). A complete break with these climatic conditions is suggested by the thick layer of brownish sandy silt, which lies between the top of these gravels and the surface-layer of black or brown soil. While the latter indicates the existence of humid conditions and vegetation, the exact significance of the formation of the brownish sandy silt is not known.⁴ Zeuner regarded it as loessic silt. Anyway, a succession of dry and wet phases is suggested.

¹ H. D. Sankalia, 'Studies in Prehistory of the Deccan (Maharashtra)', *Bull. Deccan Coll. Res. Ins.*, IV (1942-43), pp. 186 ff. and VI (1944-45), pp. 131 ff.

² F. E. Zeuner, *Stone Age and Pleistocene Chronology in Gujarat* (Poona, 1950).

³ H. D. Sankalia, *The Godavari Palaeolithic Industry* (Poona, 1952).

⁴ Dr. R. V. Joshi is at present studying the soil-samples. It is possible that when his report is ready more light will be thrown on the climatic conditions under which this bed was formed. It is expected then to publish a more exhaustive report on the Nevasa lithic industries.

NEVASA: LOCALITY I

SECTION ALONG THE RIGHT BANK OF THE
PRAVARA FACING NORTH

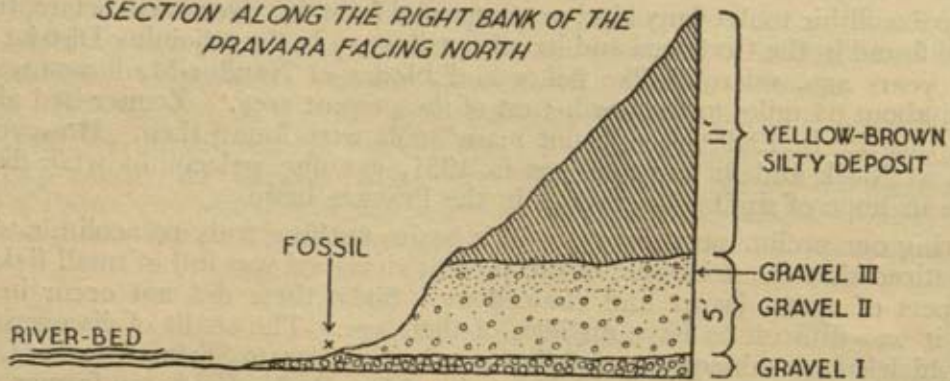


FIG. 2

Zeuner remarks, after observing a similar stratification on the Godavari at Nandur-Madhmeshwar and at Niphad:

- '(A) The lower terrace is the youngest cycle, corresponding to period (U) of the Sabarmati and the higher terrace corresponds to the older cycle (R+S of the Sabarmati). The upper cemented gravel is part of the high terrace.
- '(B) Exactly as (A), only the upper cemented gravel belongs to a yet earlier cycle of aggradation.
- '(C) The lower terrace with its underlying cemented gravel and mottled clay corresponds to the older cycle of the Sabarmati (Q+R+S) and the entire sequence of the higher terrace corresponds to an earlier cycle not represented in the Sabarmati sequence.

'The evidence for wind action is pushed into the background by river action. This is so although a loess-like deposit was found in this area. The conspicuous deposits of wind-blown sand found 250 miles to the north are absent, and the entire sequence has a much more fluvial aspect.'

NEVASA: LOCALITY V

SECTION ALONG THE LEFT BANK OF THE PRAVARA NEAR HATHI WELL

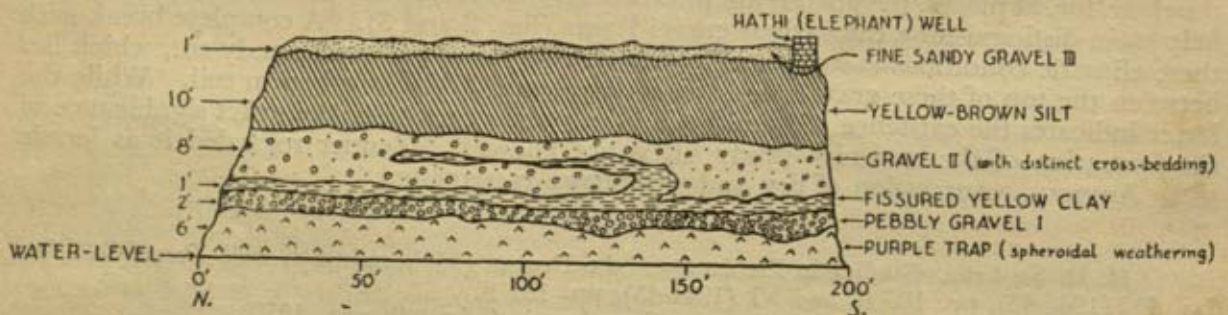
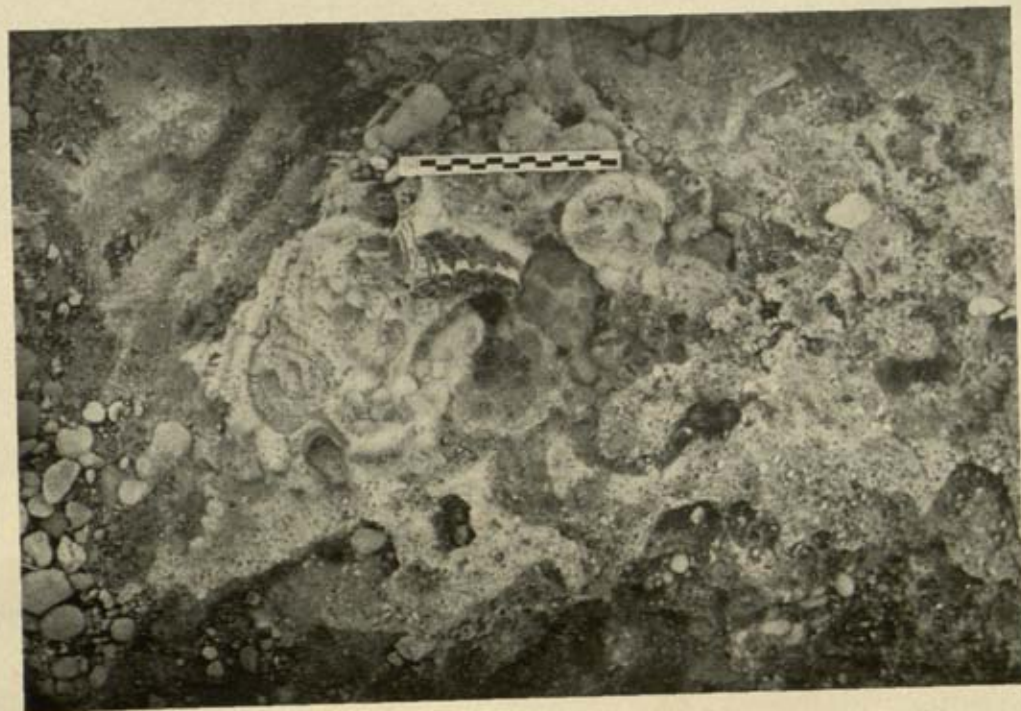
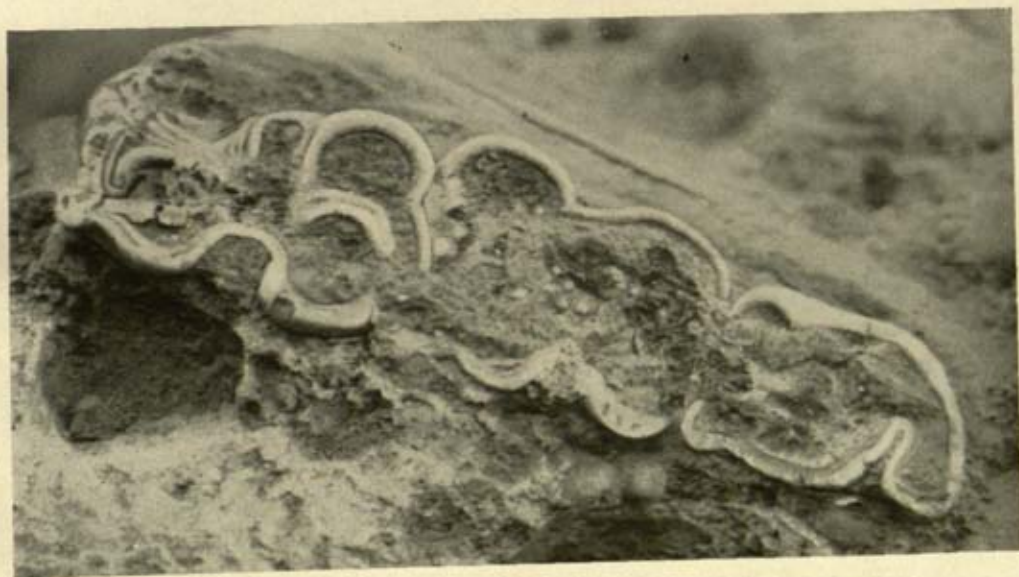


FIG. 3

¹ Zeuner, *op. cit.*, pp. 40-41.



A



B

Nevasa: A, fragmentary mandible of *Bos namadicus*, and B, its closer view. See page 39.
Scale of B, approximately $\frac{2}{1}$

But in view of our observations and the discovery of the *Bos namadicus* in the lower-most (first) gravel-bed, as at Nandur-Madhmeshwar by Pilgrim in 1904,¹ it may now be accepted that the sequence of deposits was as has been postulated here, and not the other way, as alternatively held by Zeuner. It is probable, however, that there were two successive cycles of increasing aridity as Zeuner interpretes the various gravel-deposits.

Each one of the fossils was more or less mineralized. One specimen, found by Shaikh in the hard cemented basal gravel, was a fragmentary mandible of *Bos namadicus* (pl. XIII), according to the identification kindly and very expeditiously made by the Geological Survey of India, Calcutta. There was another mandible of a similar but younger animal. This, however, also resembled that of *Bos indicus*. Of the remaining three specimens, two were the distal end of the humerus and the proximal end of the femur of a bovid, probably *Bos*. The third was a part of the pelvic girdle of a bovid.

3. THE INDUSTRIES

A. STRATIGRAPHY

Though the fossil-material is not quite sufficient to date the Pravara older alluvium conclusively, it should be noted that this is the first time that lithic industries have been found in direct association with animal-fossils outside the Narmada basin. They complement each other, and their combined evidence does not go against that known from the Narmada. Thus, the stratified mandible of *Bos namadicus*, on the Narmada data, could be of the Middle Pleistocene age, whereas the same age is also indicated by the handaxe-cleaver industry, which is typologically Late Abbevillean and Early-Middle Acheulian.

But this is not the only important feature of the Pravara material. The most interesting thing, which was partly observed by us at Maheshwar on the Narmada, is that the middle and upper gravel-beds (nos. II and III respectively from the bottom upwards) contain an altogether different industry. It is different not only in size and technique but also in the quality of the material used. The former, called here Series I, is on trap and dolerite, while the latter, Series II, uses agate, chert, chalcedony and jasper and comprises several kinds of scrapers, blades, cores, burins and points. It must be, however, noted that the handaxes do not completely vanish from the later layers. One large handaxe of green chalcedony with a pebble butt was found in the excavated gravel (middle) (fig. 4, 550), while a beautiful pointed pyriform handaxe on trap was found at the junction of the uppermost gravel and the brownish silty sand lying above it (fig. 4, 1). Only one side of it is partly blunted and smoothed by rolling, but the other is as fresh as it could be. This handaxe is in the best tradition of the Acheulian, not only of Gujarat, Karnatak, Madras, U.P.² and Panjab, but also of western Europe.

The stratigraphical position of this handaxe as well as its condition helps to remove the doubt that the Nevasa gravels are not in their original position and are reconstituted, so that we find both the industries—an earlier palaeolithic and a later palaeolithic or sub-recent—in the gravels. For, otherwise, this as well as the other handaxe would not have been found in a mint-condition. If the gravels had been reconstituted, the tools should

¹ For details, see Sankalia, *Studies in the Prehistory of the Deccan (Maharashtra)*.

² Cf. Krishnaswami and Soundara Rajan, *op. cit.*, p. 54, no. 46.

have been considerably abraded. On the contrary, very few tools—either of Series I or II—are rolled.

The possibility of intrusion, i.e. the coming down of the tools of Series II from the upper layers—of blackish-brownish soil—is also ruled out. For, in this region, unlike that of the Narmada in central India, no tools of this nature are found in the brownish-black soil. This contains, as revealed by surface-explorations, as well as by excavations at Nasik, Jorwe and Nevasa, a developed blade-industry of chalcedony. On the other hand, the thick layer of reddish-brown silty sand overlying the uppermost gravel, as in the Narmada and also in Gujarat, is devoid of any tools whatsoever.

Thus, the negative as well as the positive evidence would suggest that in this area we have to deal with two tool-making traditions—an earlier (handaxe-cleaver) tradition and a later (flake- and blade-) tradition—which flourished side by side for some time, though gradually the latter seems to have ousted the former.

Having indicated the stratigraphical position of the industries, their main types are mentioned and the more important of the individual tools described below in detail.

B. TOOLS OF SERIES I

These were found in Localities I, II and V. Specimens found *in situ* came from Gravel-beds I, II and III, while those collected from the surface were found lying on the talus near Gravel-bed I in Locality V and very probably belonged to it.

(i) *Handaxes* (fig. 4)

(a) Pebble-butted pear-shaped handaxe: thin tongue-like point; thick rounded butt; large and deep flake-scars; uneven but sharp edge. Fresh green chalcedony.

*Reg. no. 550.*¹ Locality I, Gravel-bed II, from the excavated gravel, about 8 ft. above the top of cemented Gravel-bed I.

(b) Pyriform or fish-like handaxe: fully flaked on both sides by fine 'step'-technique and subsequent retouch along the edge, leaving the central, flat, tabular patch of original cortex on either side; one surface quite fresh, as if in a mint-condition, and a half of the other, which was exposed, weathered and with effaced flake-scars.

Reg. no. 1. Locality I, at the junction of the loose coarse Gravel-bed III and upper reddish silt, *in situ*.

(ii) *Cleavers* (fig. 5)

Except one, all the rest (eleven) are on side-flakes. While the majority seem to be chipped on the Clactonian technique, *reg. no. 29* shows the 'Victoria West', and *reg. no. 27* 'step'-technique on the edges. The sections are mainly of three types: convex, triangular and parallelogrammatic. On the basis of general form—the shape of the edge and butt—all the cleavers fall into the following types, of which (c) and (g) seem to be quite new.

¹ The tools the *reg. nos.* of which are in italics are illustrated.

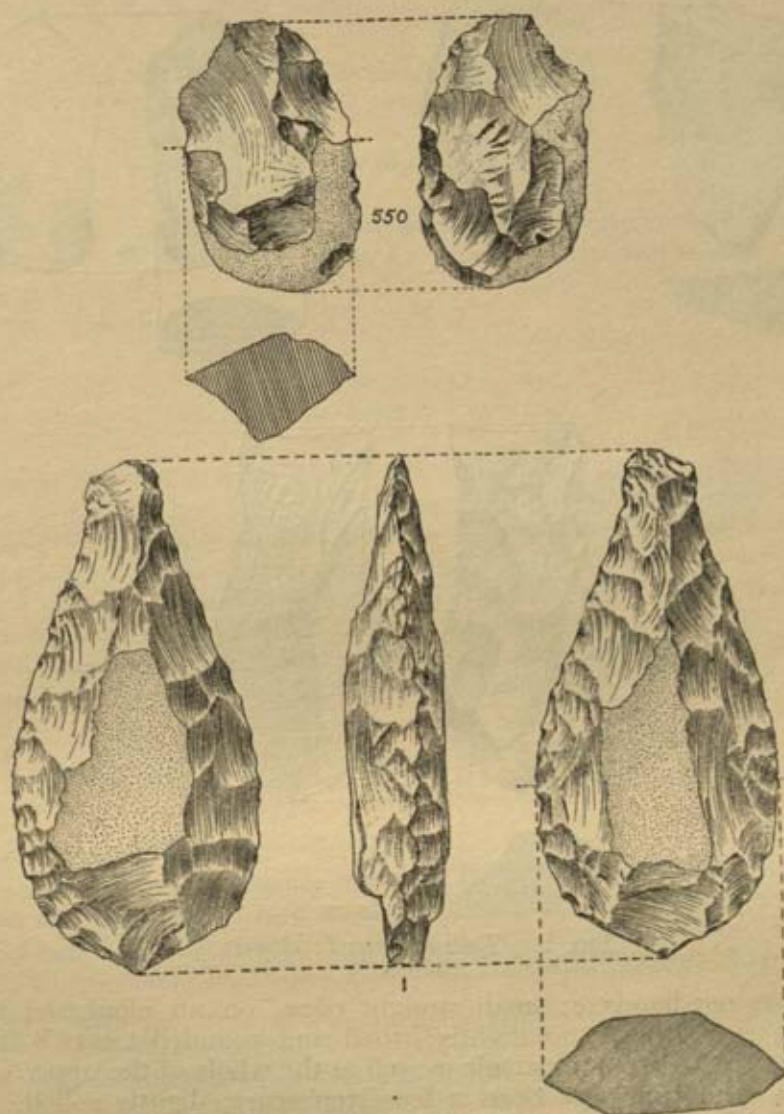


FIG. 4. Tools of Series I: handaxes. $\frac{1}{2}$

(a) Oblique edge and pointed butt.

Reg. no. 7. Locality V, Gravel-bed I, *in situ*.

Reg. nos. 10 and 12. Locality V, surface.

Reg. no. 29. Locality I, top of Gravel-bed I.

(b) Oblique wavy edge and broad bevelled butt.

Reg. no. 11. Locality V, Gravel-bed I, *in situ*.

(c) Straight or almost straight edge, with thick heavy rectangular butt.

Reg. no. 9. Locality V, surface.

(d) Straight edge with thick heavy angular butt.

Reg. no. 5. Locality V, surface.

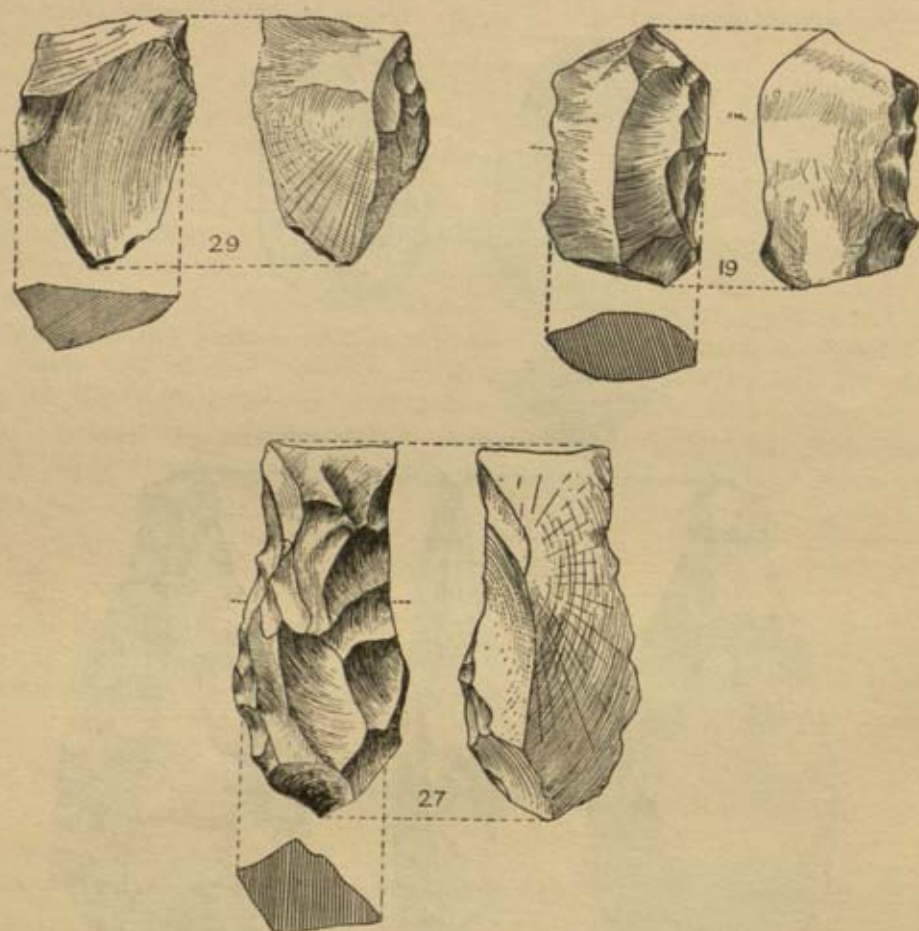


FIG. 5. Tools of Series I: cleavers. $\frac{1}{2}$

(e) Cleaver-cum-handaxe: small straight edge, on an elongated body having a comparatively narrow front, and slightly broad and rounded towards the butt, which meets in a point; a part of the underside as well as the whole of the upper body is marked by 'free' flaking, while the edge bears a few 'step'-scars; slightly rolled.

Reg. no. 27. Locality V, top of Gravel-bed I, *in situ*.

(f) Broad convex edge with pointed butt.

Reg. no. 13. Locality V, Gravel-bed I, *in situ*.

(g) Pointed angular edge and pointed or thick rounded butt.

Reg. no. 3. Locality V, surface.

Reg. no. 19. Locality V, surface.

(iii) Flakes

(a) Flakes with pointed end and thicish butt, havking a clean undersurface but partly worked on the upper surface.

Reg. nos. 7 and 14. Locality V, Gravel-bed I, *in situ*.

(b) Rectangular flake, with clean undersurface but worked on the upper surface.

Reg. no. 15. Locality V, Gravel-bed I, *in situ*.

(iv) *Discoid*

Only one discoid was found: this is on a roundish pebble, almost one-half of which has been flaked by 'step'-technique so as to yield a sharp wavy edge along half the periphery of the pebble.

Reg. no. 28. Locality V, surface.

(v) *Cores or hammer-stones* (fig. 6)

(a) Whereas the tool described above is definitely a discoid, there are five others, one found *in situ* in Gravel-bed I and four lying loose immediately below it on the talus, which may be described as fully-worked cores, with a round or semi-circular cross-section. But besides these have a small flattish surface, flaked or unflaked at one end, whereas on the opposite end there is a conical blunt point, with sinuous 'equatorial jagged' edge, due to alternate flaking, partly 'free' and partly 'step'. This suggests that one of the main functions of these tools was striking, as with a hammer. These could also be described as 'chopping tools' of Movius. Those found loose are slightly rolled.

Reg. no. 2. Locality V, surface.

Reg. no. 4. Locality V, surface.

Reg. no. 4a. Locality V, surface.

Reg. no. 16. Locality V, surface.

Reg. no. 17. Locality V, surface.

(b) One tool requires a separate mention, because, unlike others, it is of bloodstone (heliotrope) and not trap and is in a mint-condition. So it would appear that it should belong to Gravel-bed II or III, but in its careful preparation by 'free' and 'controlled' flaking it resembles the cores on trap. However, it is also possible that it truly belongs to the later gravel-beds.

Reg. no. 450. Locality I, Gravel-bed I, surface.

(c) This tool, found *in situ*, is small and may not be a hammer-stone but only a core. It has no doubt a flat unflaked surface, but there is no point.

Reg. no. 232a. Locality V, Gravel-bed I, *in situ*.

(d) Large core-flake (chopping tool?) with deep Clactonian flake-scars.

Reg. no. 13. Locality V, surface.

(vi) *Tabular handaxe on core* (fig. 7)

This also is a novel kind of tool. Thick and rectangular, it has thick deeply-flaked sides and undersurface and a broad axe-like edge, formed by the almost perpendicular slope of the undersurface meeting the upper surface. The butt-end is fully worked by 'free' flaking and ends in a small point. Thus, this piece is worked on four sides, one end of which is pointed and another has a broad edge, and the surfaces are flattish.

Reg. no. 34. Locality I, Gravel-bed I, *in situ*.

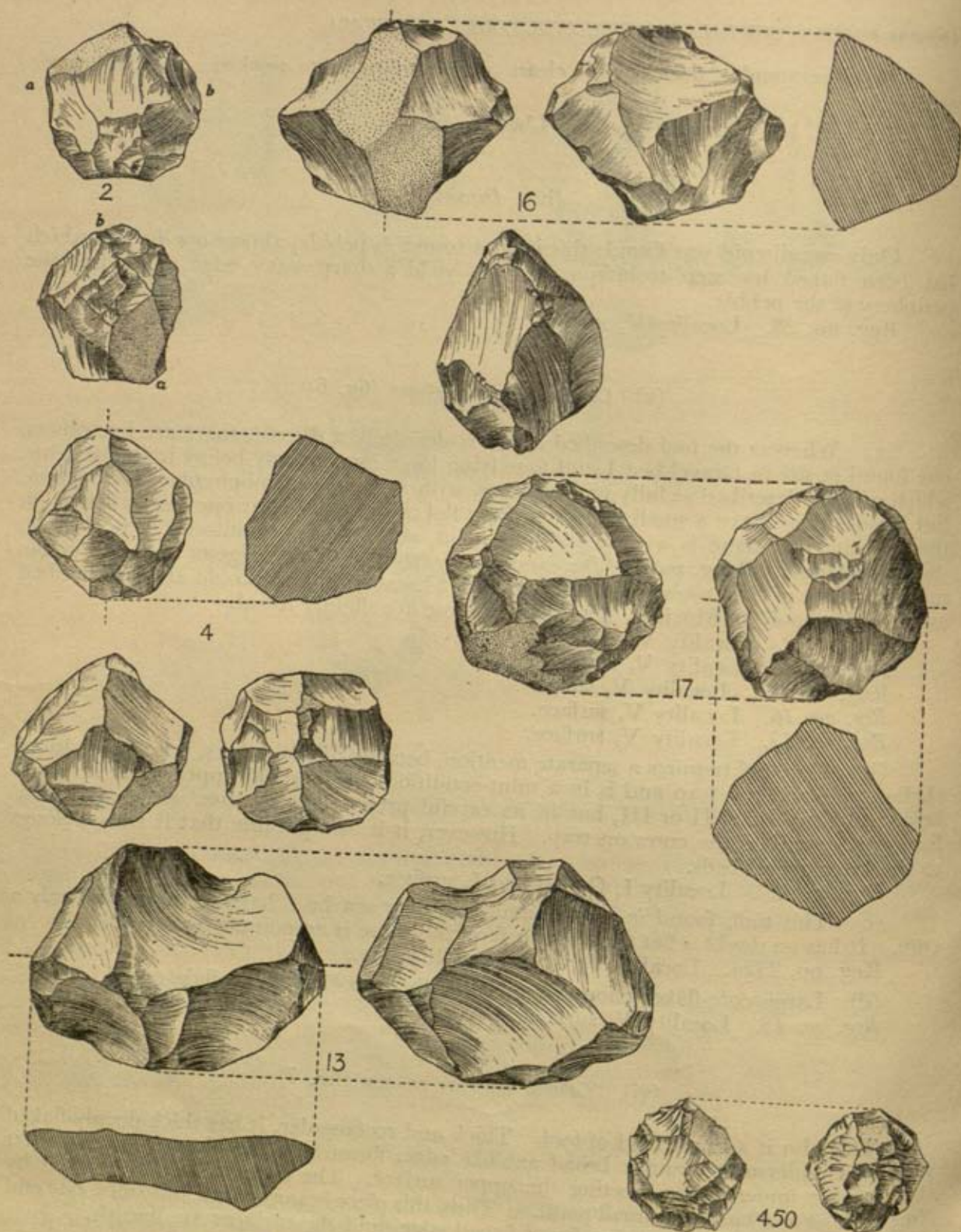


FIG. 6. *Tools of Series I: cores or hammer-stones. 13 and 450, $\frac{1}{2}$; rest, $\frac{1}{6}$*

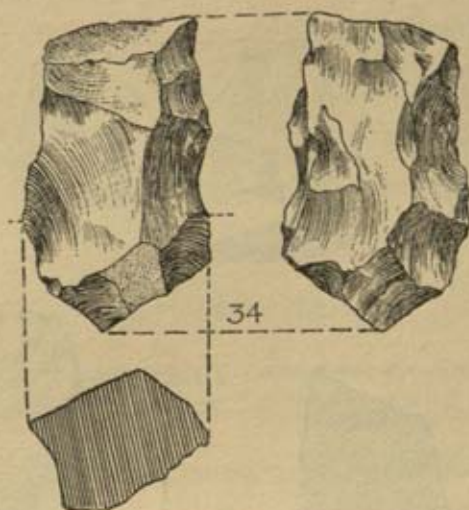


FIG. 7. Tool of Series I: tabular handaxe on core. $\frac{1}{2}$

C. TOOLS OF SERIES II

Tools of Series II were collected from Localities I, II, III, IV and V and were found *in situ* in Gravel-bed I, II or III. A much larger collection was made from the loose gravel in the present river-bed. In all two hundred and fifty-eight specimens have been studied. For the proportions of the types, please see Appendix (p. 52).

The tools may be grouped into the following types:

(i) Flakes (fig. 8)

Flakes with bulb and prepared striking platform, clean primary undersurface, upper surface worked or unworked.

- Reg. nos. 533 and 545. Chalcedony. Locality V, Gravel-bed I.
 Reg. no. 511. Trap. Slightly rolled. Locality I, Gravel-bed II.
 Reg. no. 512. Trap. Slightly rolled. Locality I, Gravel-bed II.
 Reg. no. 562. Chalcedony. Locality I, Gravel-bed II.
 Reg. no. 502. Chalcedony. Locality V, Gravel-bed III.
 Reg. no. 551. Chert. Locality I, Gravel-bed III.

(ii) Cores (fig. 8)

(a) Core (Clactonian) with deep flake-scars on one side and a flattish unworked base.

- Reg. no. 528. Mottled greenish chert. Locality V, Gravel-bed I.
 Reg. no. 558. Mottled greenish chert. Locality I, Gravel-bed I.

(b) Core worked on both sides, with deep flake-scars.

- Reg. no. 513. Chalcedony. Locality I, Gravel-bed II.
 Reg. no. 575. Chert. Locality I, Gravel-bed II.
 Reg. no. 523. Chert. Locality III, Gravel-bed II.

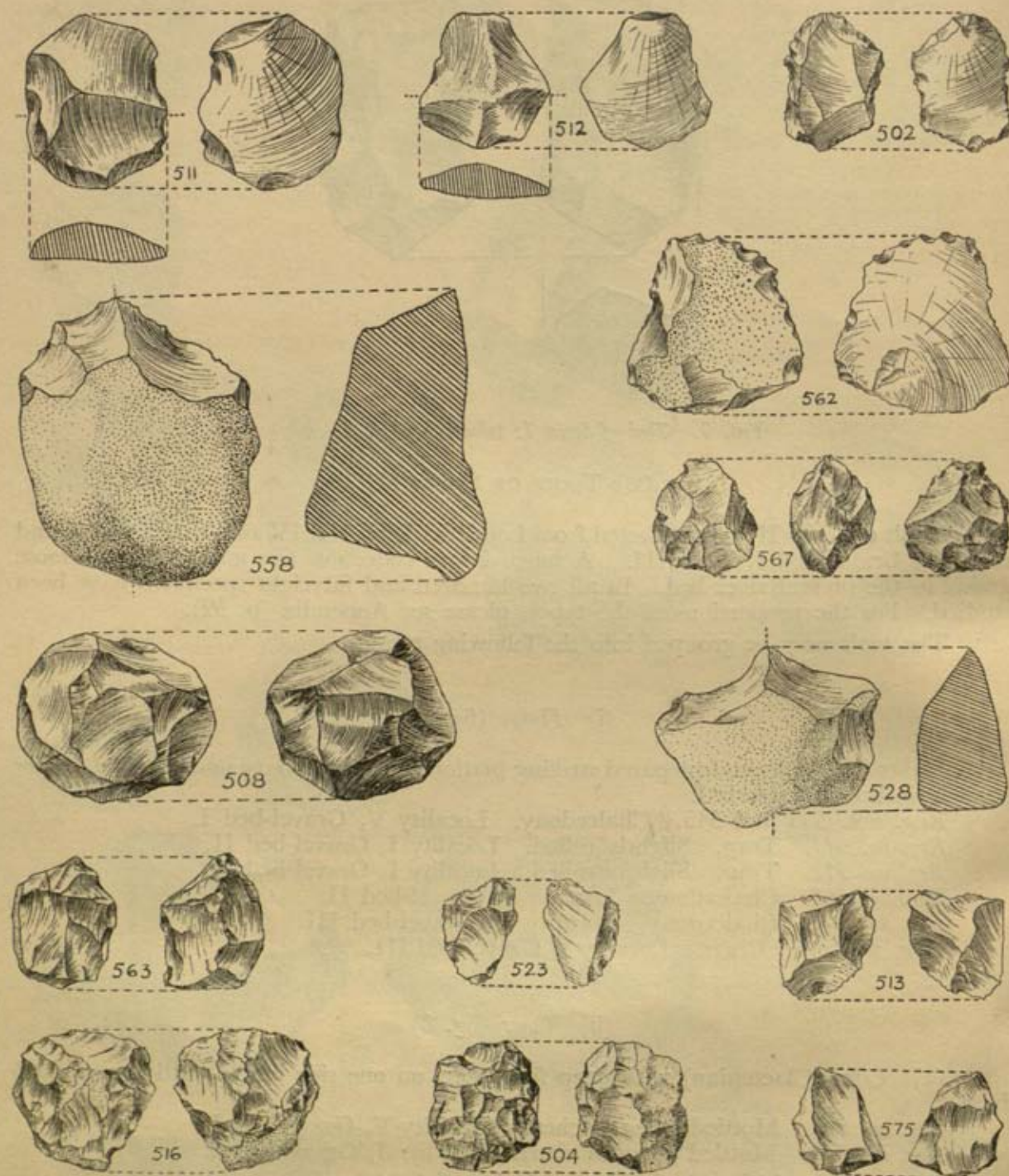


FIG. 8. Tools of Series II: 502, 511, 512 and 562, flakes; rest, cores. $\frac{1}{2}$

- (c) Discoids worked all over by pressure-technique with an irregular wavy edge.
Reg. no. 504. Chalcedony. Locality V, Gravel-bed III.
Reg. no. 516. Chalcedony. Locality III. Gravel-bed II.
Reg. no. 563. Mottled chert. Locality I, Gravel-bed II.
Reg. no. 567. Chalcedony. Locality V, Gravel-bed III.
Reg. no. 508. Greenish chert. Much rolled, perhaps of Series I. Locality I, Gravel-bed II.

(iii) *Blades* (fig. 9)

- (a) Blunted back, with edge partly retouched on the underside.
Reg. no. 356. Greenish chalcedony. Slightly rolled and glossy. Locality I, Gravel-bed II, *in situ*.
 (b) Narrow worked butt, with retouch partly on the underside and partly all round the upper side.
Reg. no. 232. Mottled chert. Locality II, surface.
 (c) Flake-blade, with a small notch and retouch on the edge-side and near the underside of the butt-end.
Reg. no. 570. Chert. Gravel, *in situ*.

(iv) *Scrapers* (fig. 9)

- (a) Tabular side-scraper with cortex all over, except on the edge; one side is the result of a single flake-scar, while the other is fairly worked by pressure-technique; straight worked back.
Reg. no. 561. Yellowish chert. Locality I, loosely embedded in Gravel-bed I.
 (b) End-scraper, with retouch on either side.
Reg. no. 238. Greenish chalcedony. Locality I, surface.
Reg. no. 468. End-scraper *cum* double-edged blade with upturned front, which is flaked partly on the upper surface as well as on the undersurface. Chalcedony with variegated hues. Locality I, surface.
 (c) Steep-ended scraper.
Reg. no. 237. Whitish chalcedony. Locality I, surface.
Reg. no. 21. Red jasper. Locality I, surface.
 (d) Hollow scraper, with blunted back, flattish chipped undersurface and retouched edge.
Reg. no. 209. Brownish chert. Locality II, surface.
Reg. no. 315. Greenish chalcedony. Locality I, surface.
 (e) Hollow scraper on a flake with retouch all round, except on the bulb and the faceted platform.
Reg. no. 211. Greenstone. Locality I, surface.
 (f) Hollow scraper, with retouch on one edge only.
Reg. no. 375. Banded red jasper. Surface.
 (g) Hollow double-edged scraper.
Reg. no. 211A. Chert. Locality I, surface.
Reg. no. 554. Chert. Partly patinated. Locality II, Gravel-bed II, *in situ*.

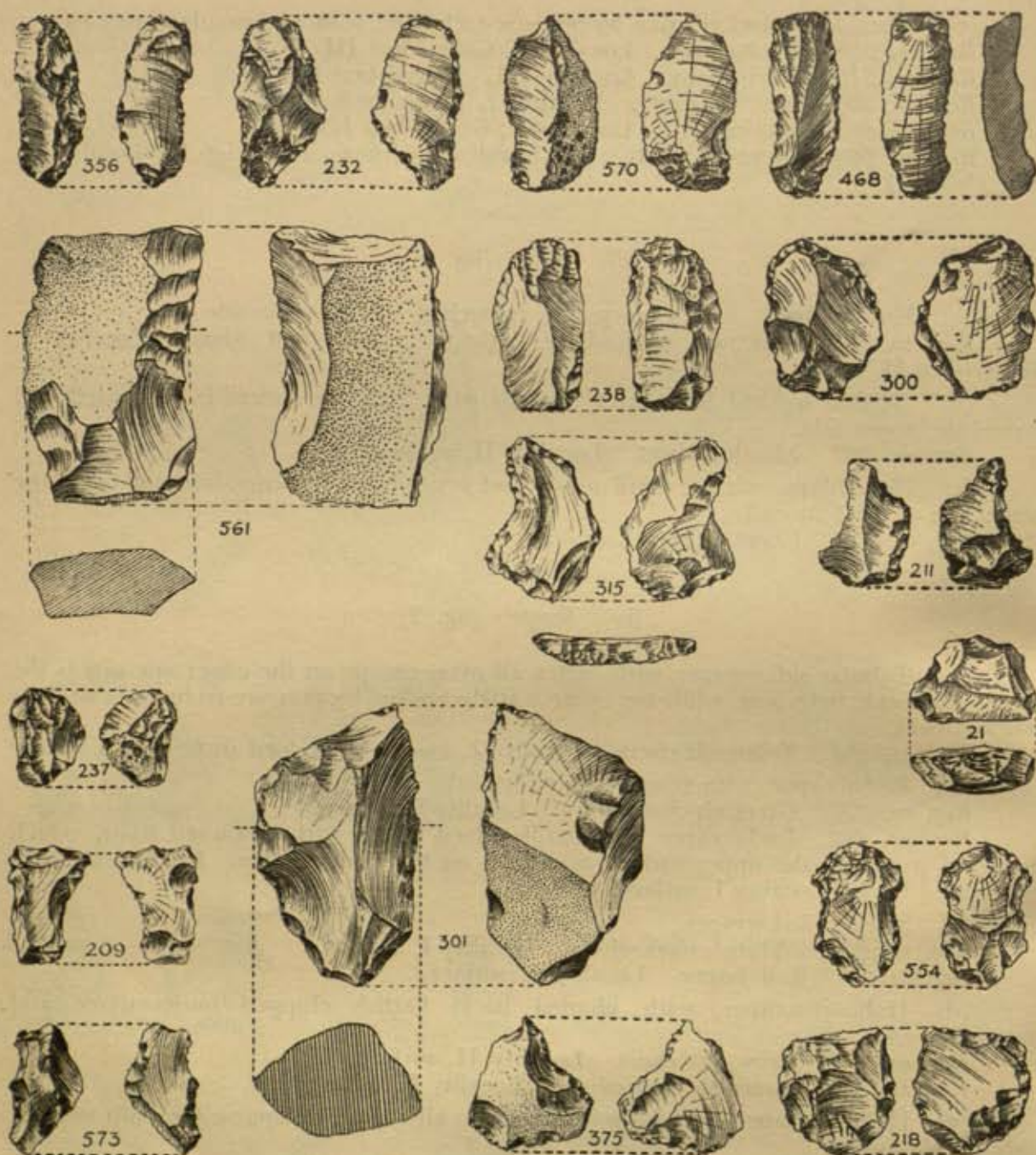


FIG. 9. Tools of Series II: 232, 356 and 570, blades; rest, scrapers. 301, $\frac{1}{2}$; rest, $\frac{1}{4}$
 (h) Side-scraper, with a part of the underside and the bulb also trimmed.
 Reg. no. 573. Banded chert. Locality I, Gravel-bed II, *in situ*.
 Reg. no. 300. Chocolate jaspery chert. Surface.
 Reg. no. 299. Chocolate banded jaspery chert. Locality I, surface.

(i) Semi-oval scraper, with retouch around.

Reg. no. 218. Greenish chalcedony. Locality I, surface.

(j) Miniature cleaver-like oblique-edged scraper.

Reg. no. 301. Bloodstone (heliotrope). Locality V, surface.

(v) *Burins* (fig. 10)

(a) Burin on a blade, with marginal retouch on the burin-facet as well as on the side opposite it.

Reg. no. 253. Semi-transparent chalcedony. Locality II, surface.

(b) Double-ended burin, having a patch of cortex on the flat underside.

Reg. no. 251. Chocolate chert. Locality I, surface.

(c) Thick rectangular piece, having a chisel-like short broad edge, one side of which is vertically flaked as in a burin.

Reg. no. 530. Chert. Locality V, Gravel-bed I, *in situ*.

(vi) *Tools with points* (fig. 10)

(a) Drill or awl.

Reg. no. 164. Chalcedony. Surface.

(b) Arrow- or spear-head on a fine large flattish triangular flake, with marginal retouch.

Reg. no. 227. Chalcedony. Surface.

(c) Broad projecting point, with oblique retouch on the underside and 'step'-like cuts on the margin of the upper surface.

Reg. no. 74. Brownish chert with glossy surface. Locality I, surface.

Reg. no. 506. Blackish chert. Locality V, Gravel-bed III, *in situ*.

Reg. no. 507. Chalcedony. Locality V, Gravel-bed III, *in situ*.

Reg. no. 545. Greenish quartz. Locality V, Gravel-bed I, *in situ*.

The last two are smaller and more symmetrical.

(d) Thick triangular piece, with an unflaked undersurface and almost fully-flaked upper surface, with a chisel-like edge.

Reg. no. 529. Banded agate. Locality II, Gravel-bed.

(vii) *Levallois flakes* (fig. 10)

A few comparatively thin and symmetrical flakes, with a faceted or simple striking platform, an erased bulb and an angle of 90° , have been found. Some are partly retouched along the edges. They are all from the surface.

Reg. no. 283. Large, thin, leaf-shaped flake, with a shallow flake-scar on the surface, edges partly retouched from the upper surface and undersurface, erased bulb, simple platform and angle of about 90° . Brownish jaspery chert. Locality II, surface.

Reg. no. 374. Large, thin, roundish flake with two flake-scars on the upper surface, finely-faceted platform and partially retouched edges. This flake must have been removed from a tortoise-core. Mottled green-yellowish chert. Locality I, surface.

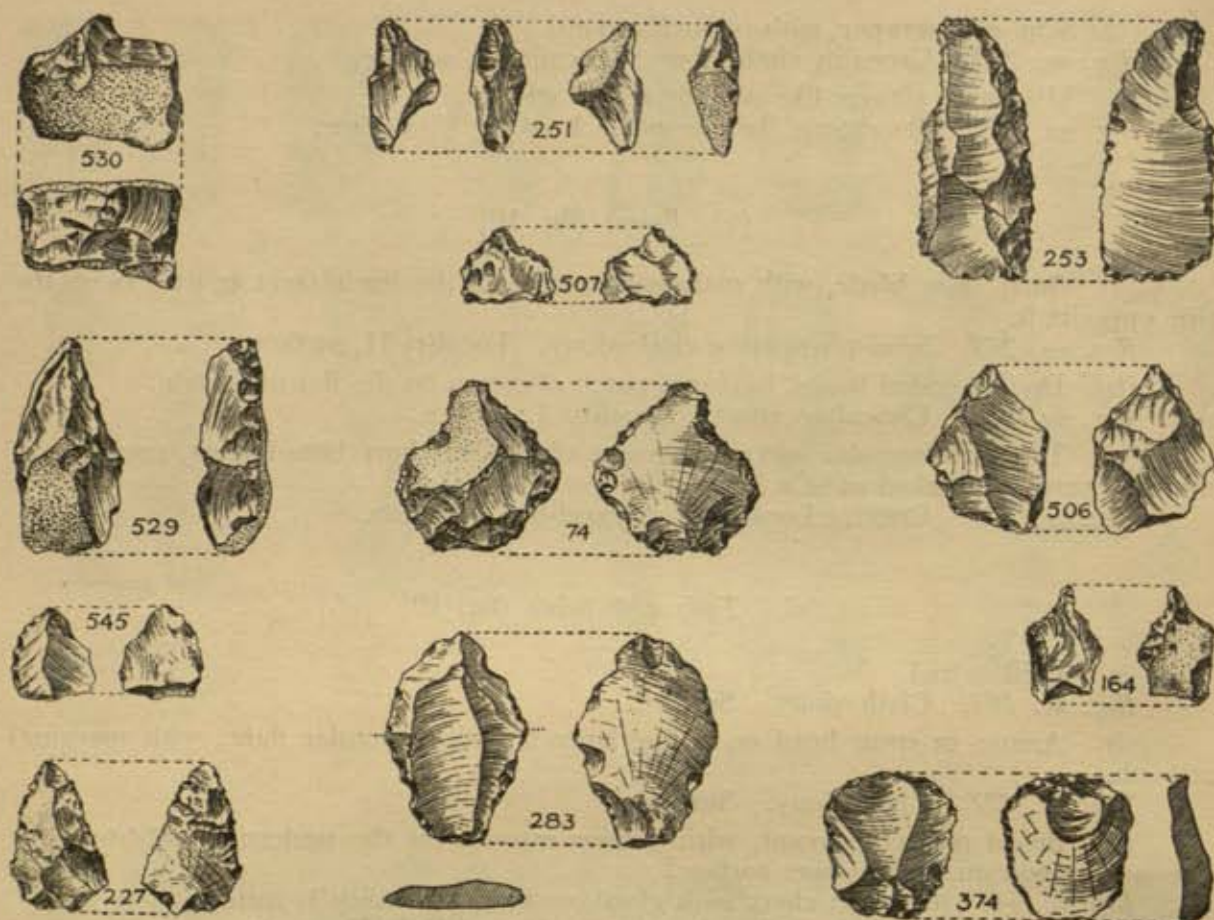


FIG. 10. Tools of Series II: 251, 253 and 530, burins; 283 and 374, Levallois flakes; rest, tools with points. 253, $\frac{1}{2}$; rest, $\frac{1}{4}$

(viii) General observations

Many of these tools are similar in type and technique, as also in the material, to those previously found by the writer in the gravels at Nandur-Madhmeshwar, which Zeuner describes as 'Pleistocene'.¹ However, neither the writer nor Zeuner could classify the assemblage under a particular industry, because it lacked 'the characteristics of known industries'. The determination of its stratigraphical position, as succeeding the Early Palaeolithic, as well as of its character helps us not only to recognize the true significance of the earlier discoveries but opens up a promising field for further research, for there are extensive deposits of later gravels in the Deccan and elsewhere. A systematic examination of these is likely to give us a proper idea of the Middle or Upper Palaeolithic industries in India.

¹Zeuner, *op. cit.*, p. 38. V. D. Krishnaswami, *Ancient India*, no. 9, p. 60, while reviewing the progress in prehistory, seems to confuse the true Lower Palaeolithic industry at Nasik on the Godavari with the earlier one found by the writer at Nandur-Madhmeshwar. It was the latter that could not be classified by the writer and Zeuner. But now it can be said that the industry is akin to Series II of Nevasa.

D. TOOLS OF SERIES III —MICROLITHS (fig. 11)

The loose dry gravels of the present river-bed also yield lunates and other varieties of blades. These are, as a rule, of milky or semi-transparent chalcedony. None of these is so far found *in situ* in any of the gravel-beds in the sections observed by us. Since a large number of such blades and flakes is found scattered in the surface—black or brown soil—and also occur in stratified deposits which can be assigned to the chalcolithic period in the Deccan,¹ these microlithic blades from the loose gravels may be regarded as considerably later. Even the burin and large arrow- or spear-head of chalcedony (above, p. 49) might truly go with this microlithic industry. The main types of these blades are briefly described and illustrated.

(a) Gravette-like point, with fine retouch on the back and an elongated point.
Reg. no. 502 A.

(b) Lunate. *Reg. no. 502 B.*

(c) Scalene triangle, with fine vertical retouch all along the back. *Reg. no. 502 C.*

(d) Large sub-triangular thin flake, with oblique retouch on the straight side and vertical retouch on the angular side. Probably a spear- or arrow-head. *Reg. no. 502 D.*

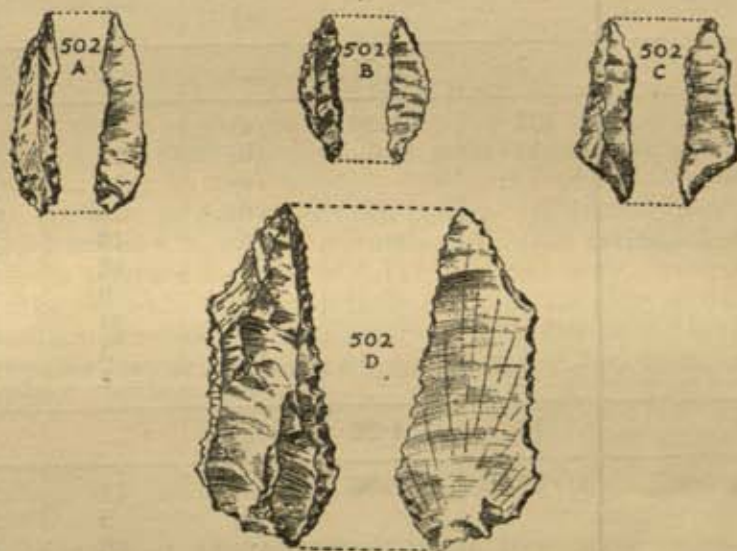


FIG. 11. Tools of Series III, microliths: 502 A, Gravette-like point; 502 B, lunate; 502 C, scalene triangle; 502 D, sub-triangular thin flake. $\frac{1}{4}$

4. CONCLUSION

From the above brief details, it would be clear that we have a succession of lithic industries at Nevasa. There is no doubt that the handaxe-cleaver industry was followed by a flake-, blade- and scraper-industry. Whether the latter was followed by a mesolithic industry, or there was a long gap, as suggested by the thick sterile layer of brownish sandy silt, cannot be said for certain. But towards the close of this period, a microlithic industry

¹H. D. Sankalia and S. B. Deo, *Report on the Excavations at Nasik and Jorwe* (Poona, 1955), pls. XXXI and XXXII.

again flourished in this area and, in fact, all along the middle reaches of the Godavari and its tributaries. From this, and probably due to other cultural intrusions, a short-blade industry developed in the chalcolithic period.

APPENDIX

Statistical analysis of the Nevasa Series II implements¹

Class	No. found	Approximate percentage in the total no. (258) ²	Sub-class	No. of tools in sub-class	Approximate percentage in the class	Percentage in the total number
(i) Flakes ...	50	19.38	...	...	...	...
(ii) Cores ...	32	12.4	(a)	11	34.4	4.26
			(b)	14	43.7	5.43
			(c)	7	21.9	2.71
(iii) Blades ...	7	2.71	...	...	...	...
(iv) Scrapers ...	133	51.56	(a)	1	...	...
			(b)	17	12.78	6.6
			(c)	16	12.0	6.2
			(d)	16	12.0	6.2
			(e)	18	13.5	6.98
			(f)	18	13.5	6.98
			(g)	9	6.77	3.49
			(h)	34	25.56	13.18
			(i)	3	2.26	1.16
			(j)	1	...	...
(v) Burins ...	11	4.26	...	...	...	...
(vi) Tools with points ...	19	7.36	(a)	11	57.9	4.26
			(b)	5	26.31	1.94
			(c)	3	15.79	1.16
(vii) Levallois flakes ...	6	3.32	...	...	...	...

Postscript.—A further survey of the Pravara at Nevasa and elsewhere and of the Godavari at Bel Pandhari, Warkhed and Kalegaon yielded the following tools: *Series I*, eighteen handaxes, twentyfive cleavers, thirtyfour cores, including hammer-stones, and eighteen flakes; *Series II*, numbering one thousand two hundred and thirtyfive tools, of which eight hundred and sixtyfive were finished tools and most of which were found *in situ* in the gravel at Bel Pandhari and Kalegaon. Blades were comparatively few. My pupil, Shri Banerji, is inclined to regard the industry as typologically similar to the Tayacian.

¹ I am thankful to Shri K. D. Banerji, one of my pupils working on the Later Stone Age cultures of central India, the Deccan and Karnatak, for preparing the statistical analysis.

² This does not include chips or such other rejected specimens.